

Specification For Approval

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Customer : 合勤科技有限公司

Customer P/N : 65-031-240110B

INVAX P/N : AN2400-24A07GX

Description : Antenna

Cortec Checked By:

Customer Approved By:



INVAX System Technology Corp.
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Product Number: AN2400-24A07GX

Product Name: Antenna



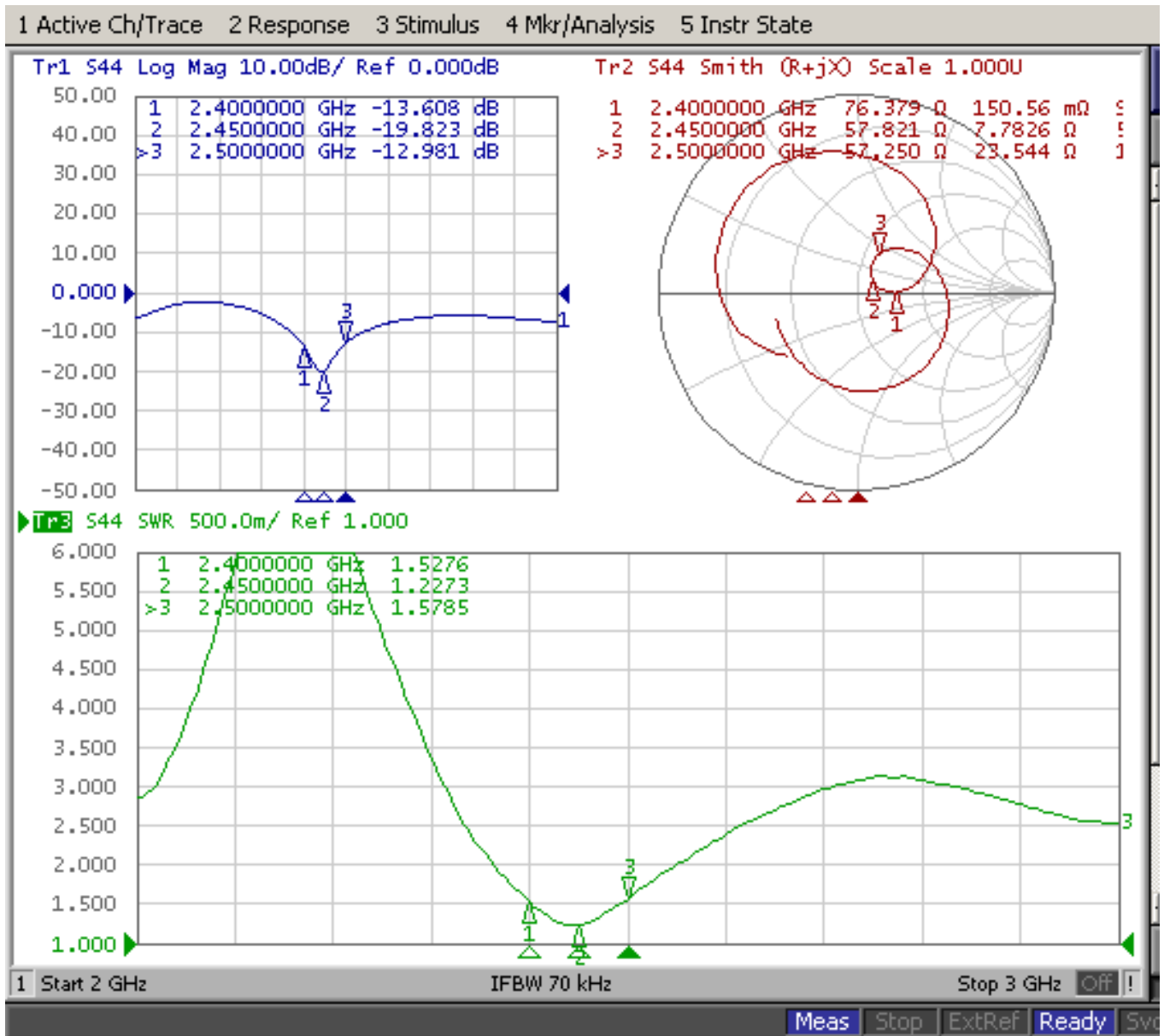
1. Specification

Sample Photo	
	
A. Electrical Characteristics	
Frequency	2400 ~ 2500 MHz
S.W.R.	≤ 2.0
Antenna Gain	$2.0 \pm 0.7 \text{ dBi}$
Polarization	Linear
Impedance	50 Ohm
B. Material & Mechanical Characteristics	
Material of Radiator	Cu
Material of Plastic	Body: TPE Hinge: PA+ABS Holder: PC+ABS
Cable Type	O.D. 1.13 mm
Connector Type	I-PEX
Connector Pull Test	$\geq 1 \text{ Kg}$
Connector Torque Test	/
C. Environmental	
Operation Temperature	- 40 °C ~ + 65 °C
Storage Temperature	- 40 °C ~ + 80 °C

2. Characteristics and Reliability Test

Test Items		Test Condition and Procedure	Requirements
C1	S.W.R.	Set DUT on Network Analyzer; make individual calibration to test	Directive DUT specification
C2	Antenna Gain	Set DUT on Antenna Chamber; make individual calibration to test	Directive DUT specification
M1	Vibration	MIL-STD-202G, 201A Amplitude: 0.03 inch (0.76mm); Freq: 10 to 55 Hz 3 directions; 2 hours for each direction	1. No Visual Damage 2. Frequency Tol.<= 5%
M2	Random Drop	Height: 1.5 Meter; 3 directions; 1 time for each direction	1. No parts separated 2. Frequency Tol.<= 5%
M3	Solderability	MIL-STD-202G, 210F, cond. A Solder iron: 350±10°C; Duration: 5 seconds	1. Mounted on PCB 2. No Visual Damage
M4	Terminal-Pull Test	MIL-STD-202G, 211A, cond. A Holding with individual specification; force applied to axis of terminal	1. Directive DUT specification 2. Frequency Tol.<= 5%
M5	Terminal-Torque Test	MIL-STD-202G, 211A, cond. E Holding with individual specification; applied clockwise and counterclockwise to the axis of terminal	1. Directive DUT specification 2. Frequency Tol.<= 5%
M6	Dimension	Inspection of dimension, color, material, package, surface process	Directive DUT specification
E1	Salt Spray	MIL-STD-202G, 101E, cond. B Temp: 35°C; RH: >= 95%; NaCl solution: >= 5%; Time: 48 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E2	Humidity	MIL-STD-202G, 103B, cond. B Temp: 40°C; RH: >= 95%; Time: 48 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E3	Thermal Shock	1 Cycle: - 40°C (30 minutes) to + 80°C (30 minutes) Cycles: 24	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E4	Life (High Temp.)	MIL-STD-202G, 108A, cond. A Temp: 85°C; Time: 96 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
R1	RoHS	With Reference to IEC 62321:2008 with flow chart	Directive RoHS 2002/95/EC
R2	PFOS	With Reference to USA EPA 3540C:1996 by LC/MS	Directive RoHS 2006/122/EC
R3	PFOA	With Reference to USA EPA 3540C:1996 by LC/MS	Directive RoHS 2006/122/EC

3. Antenna - S Parameter Test Data



Product Number: AN2400-24A07GX

Product Name: Antenna



4. Antenna - Radiation Pattern Test Data

Testing Equipment Specification:

Antenna Anechoic Chamber Dimension: 8 x 4 x 4 m

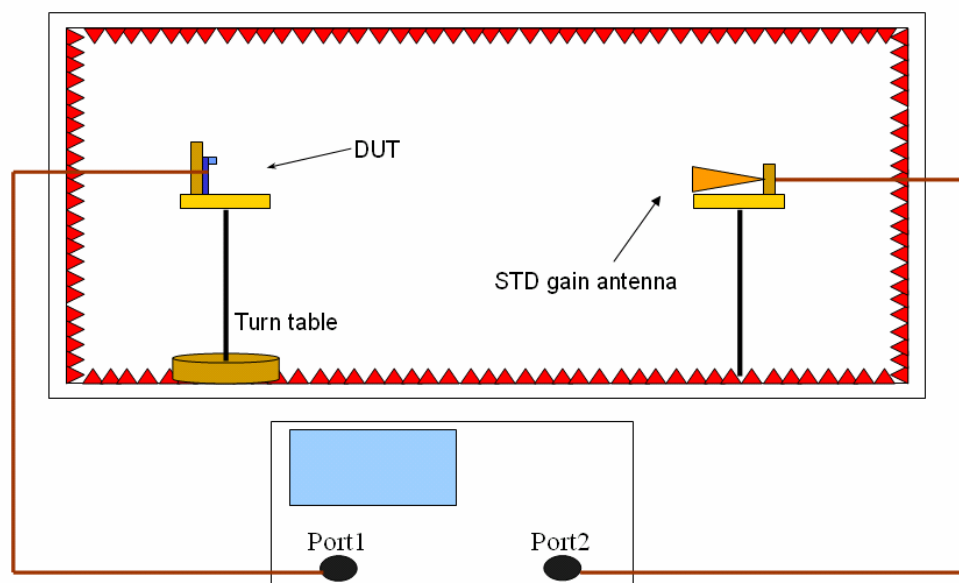
Quiet Zone: 600mm @1 GHz

Isolation: >100dB @ 1 MHz ~ 10 GHz

Testing Equipment: Agilent 5071B

Received Antenna: 0.7 ~ 6.0 GHz for Gain Calibration

Double Ridged Horn Antenna



5. Mechanical Drawing

See attached files

6. Material Description and RoHS Test Report

See attached files



Model: 2.4GHz Antenna
Remark :H-Plane // Vertical Polarization
Tested by : Antenna 3D Lab // Zhao Yao Rong

Location: **Chamber**

Date: **2009/5/7**

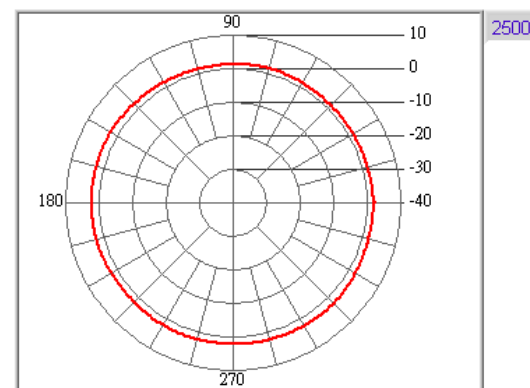
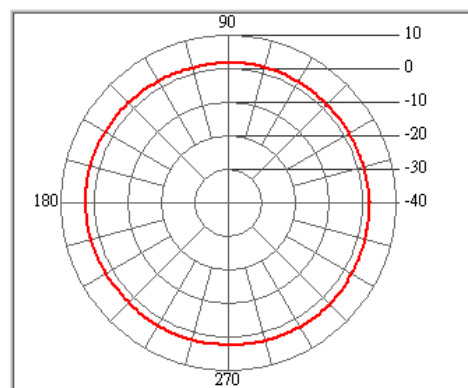
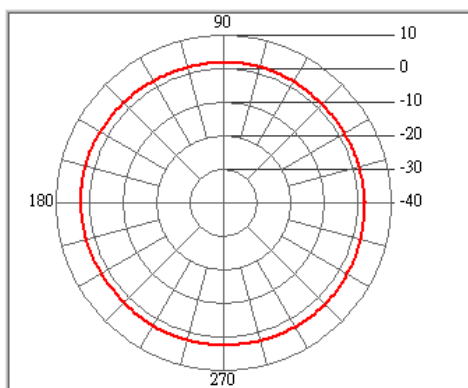
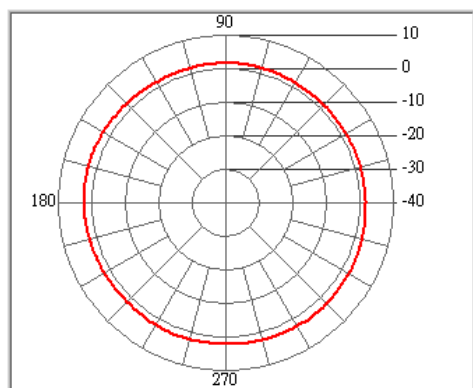
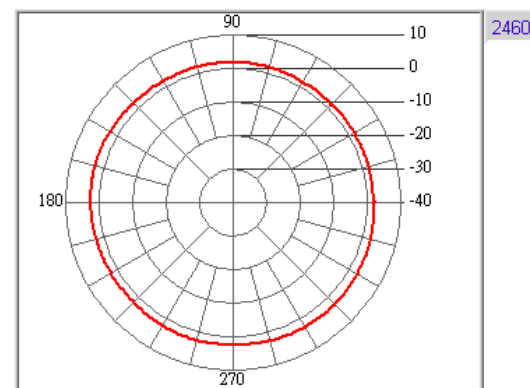
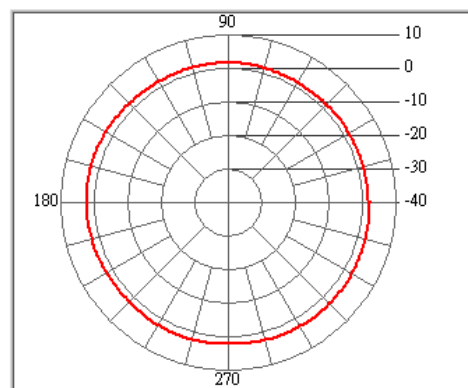
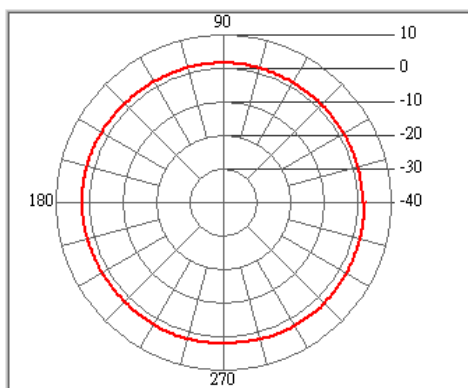
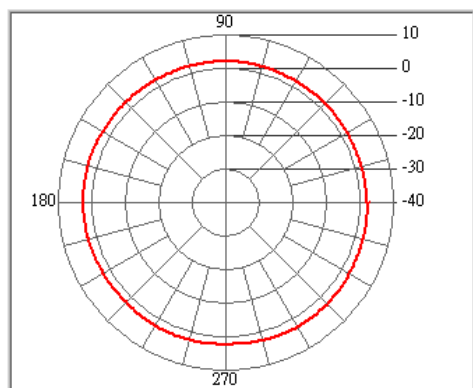
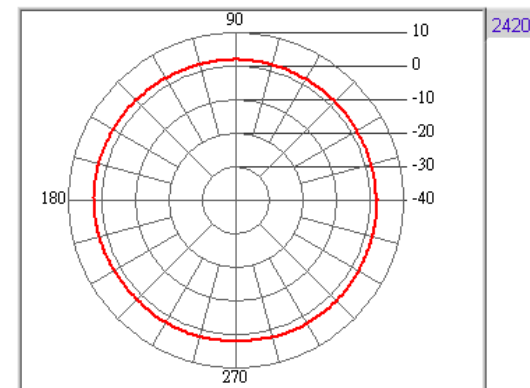
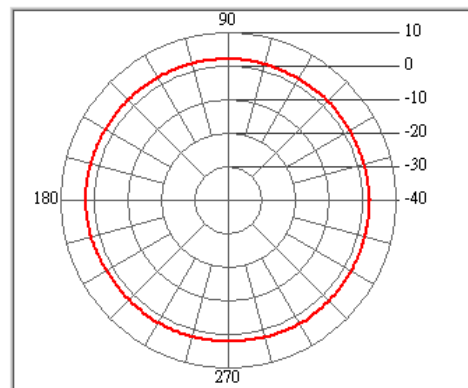
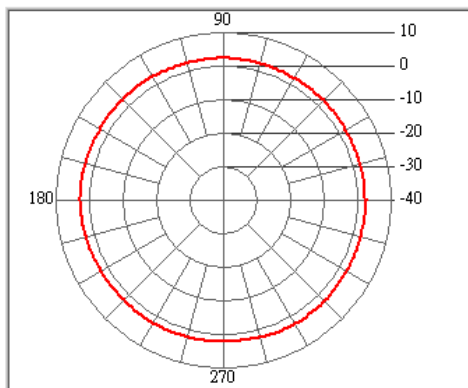
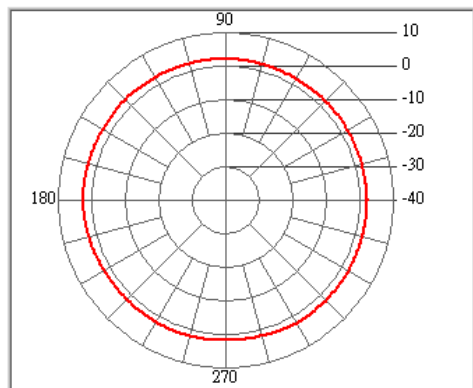
Time: **上午 09:08:58**

Temperature (°C): **22.00**

Humidity (%): **55.00**

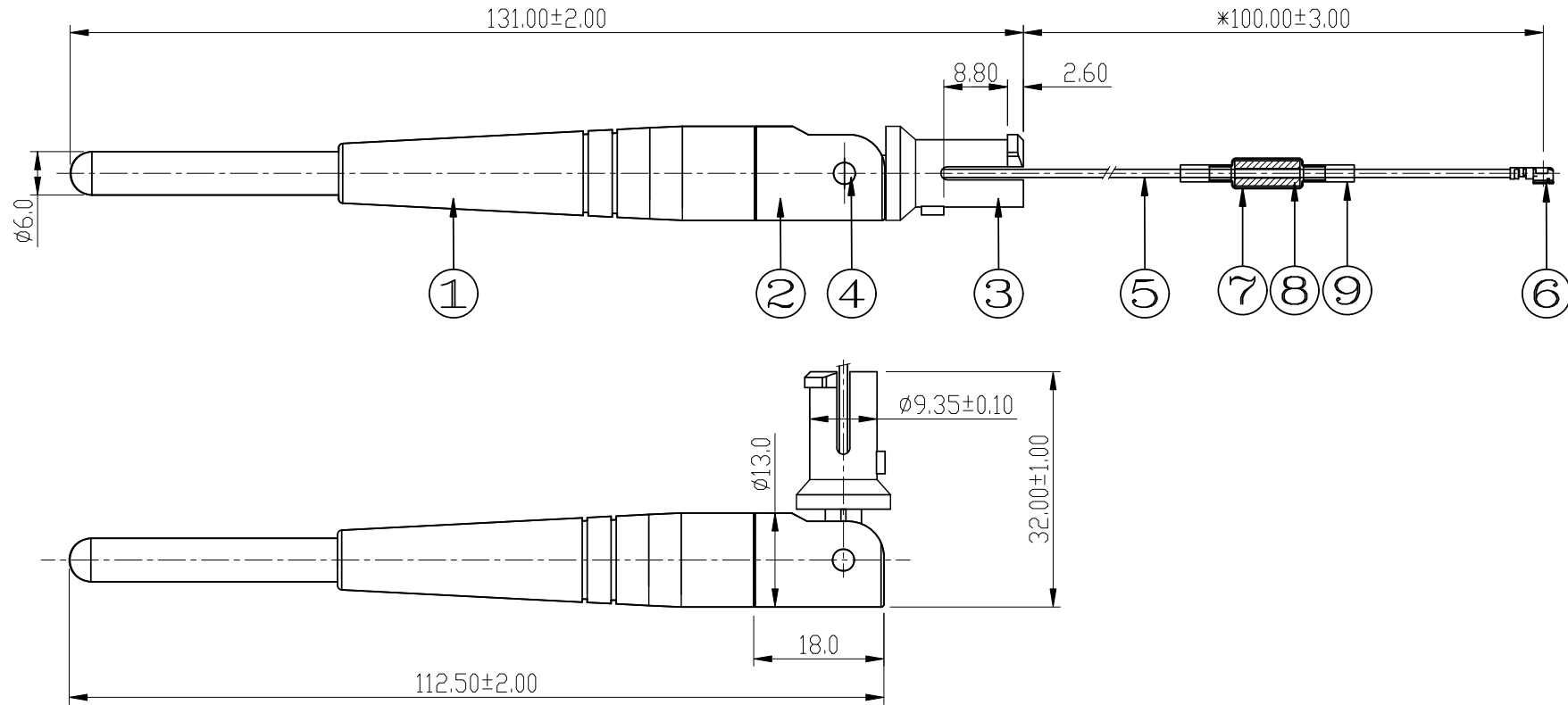
Approved by:

Freq. (MHz)	2390	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain (dBi)	2.54	2.74	2.54	2.45	2.77	2.48	2.68	2.88	2.57	2.8	2.74	2.41
Peak Degree	138	175	299	298	299	311	311	311	305	305	317	305
AV Gain (dBi)	2.12	2.36	2.17	2.05	2.28	1.89	2.03	2.22	1.95	2.23	2.17	1.87



RoHS Compatible

SIGN	DATE	DESCRIPTION	APPROVER
△			
△			
△			



Note:

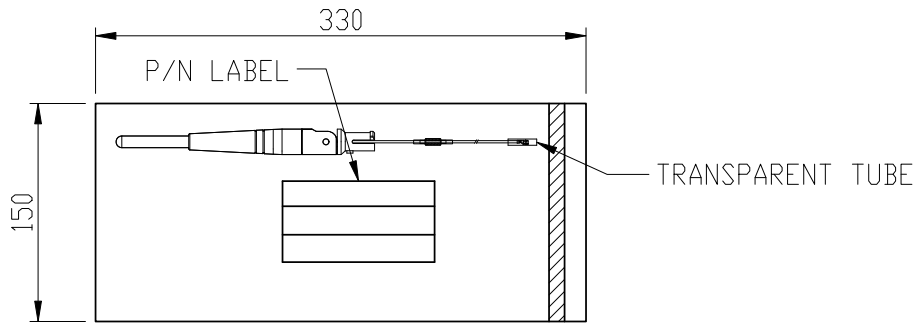
1. Dimension: Take * is the important dimension
2. Tolerance: Unmarked tolerance refer to the standard tolerance please
3. CONN orientation is as shown

9	R-HSTUBE-020N	Hstube	EVA	$\phi 2.0 \times 9.0\text{mm}$	2
8	R-MR-040020100	Core	Fe ₂ O ₃	$\phi 4.0 \times 10\text{mm}$	1
7	R-HSTUBE-035N	Hstube	EVA	$\phi 3.5 \times 19\text{mm}$	1
6	CI-113	Conn		Mini Conn	1
5	R-CB-113A	Cable	$\phi 1.13\text{mm}$	Gray	1
4	R-AN03-514CN	Hinge Pin	Cu	Ni Plated	2
3	R-AN2401-01AW	Body3	PC+ABS	White	1
2	R-AN03-T02W	Body2	PA+ABS	White	1
1	R-AN03-T03W	Body1	TPE	White	1
No.	Part Number	Description	Material	Finish	Q'ty

Invax System Group.			Cortec Technology Inc.		
Cortec			Http://www.invaxsystem.com E-mail: info@invax.com.tw Tel :886-2-27885218 Fax:886-2-27831658		
PART NAME: ANTENNA-2.4GHz 2dBi					
PART NO.: AN2400-24A07GX			DWG NAME: AN2400-24A07GX.dwg		
APPROVED BY	CHECKED BY	DESIGNED BY			Tolerance
Grant 2009/07/07	Jack 2009/07/07	Roger 2009/07/07	UNITS: mm SCALE: 1/1 REVISION: A		X.X ± 0.30 X.XX ± 0.15 X° $\pm 3^\circ$

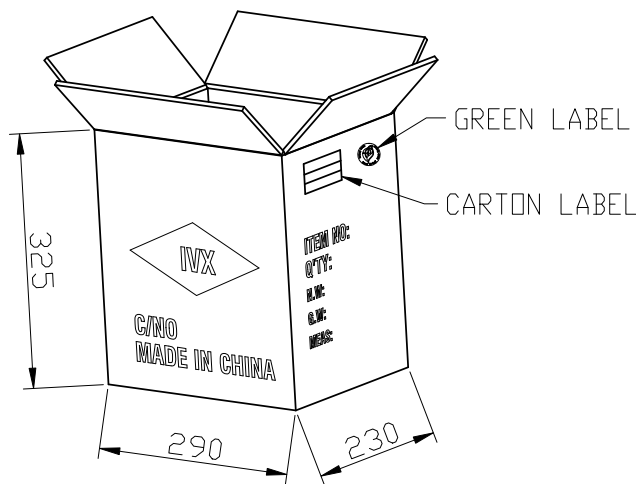
Part Number : AN2400-24A07GX	Revision : A
Name: AP ANTENNA	Customer : ALL

一. WITH THE ANT INTO THE PE BAG



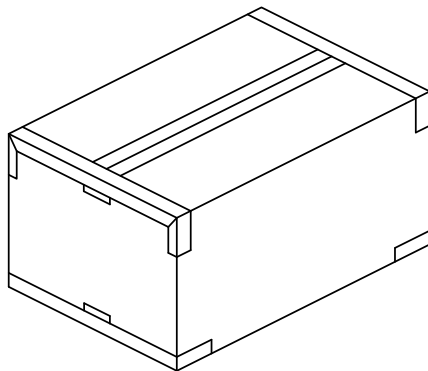
10PCS/PE BAG

二. PACKING

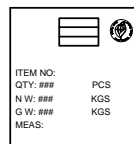


500 PCS/CARTON

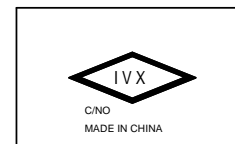
三. SEALING



SIDE



FRONT



UNITS: mm

Coaxial Cable Datasheet

O.D. 1.13 mm (AWG32) Coaxial Cable Specification		
1. Cable Type	O.D. 1.13 mm (AWG32)	
2. Impedance	50 ± 3 ohm	
3. Inner Conductor	Material	silver-coated cooper
	Conductor Numbers	7
	Conductor Size	0.08 mm
	Outer Diameter	0.24 mm
4. Dielectric Layer	Material	FEP
	Color	Clear
	Average Thickness	0.22 mm
	Diameter	0.68 mm
5. Braid (Shielding)	Material	tin-coated cooper
	Construction	16-4-0.05 mm
	Coverage	90 %
6. Outer Cover	Material	FEP
	Color	Black / white / gray
	Average Thickness	0.10 mm
	Diameter	1.13 ± 0.05 mm
7. V.S.W.R Testing (DC ~ 6GHz)	< 1.3	
8. Attenuation (dB / 1 meter)	100 MHz	0.60
	400 MHz	1.25
	1800 MHz	2.23
	2400 MHz	2.70
	5200 MHz	4.15
9. Capacitance	97 ± 3 (pF / meter)	
10. Maximum Power	30 dBm	
11. Spark Test	500 V	
12. Rating Temp. and Volt.	200°C / 30V	
13. Conductor Resistance	520 ohm / KM / 20°C max.	
14. Dielectric Resistance	1500 M ohm / KM / 20°C min.	

TPE Datasheet

物性項目 Property	單位 Unit	ASTM 試驗法 Test Method	TPE
比重 Specific Gravity	---	D792	0.88
模具收縮率 Shrinkage	%	D955	0.8-2.5
斷裂拉伸強度 Tensile Strength	Kg/ cm ³	D638	3.1
扭曲強度 Flexural Strength	Kg/ cm ³	D790	---
衝擊強度缺口 23°C Impact Strength	Kg om/om	D256	---
硬度 Hardness	A Shore	---	13
熱變形溫度 0.45 MPa Heat Deflection Temp.	°C	D648	80
熔融指數 Melt Flow Index	G/ min ²	D1238	10
燃燒性 Flammability	---	UL94	HB
<p>Testing Data from</p> <p>東莞市合春塑料有限公司 Tel:86-0769-2774772</p> <p>台灣大雅國際股份有限公司 Tel:886-02-27775232</p>			

PC Datasheet

TEIJIN POLYCARBONATE SINGAPORE PTE. LTD.

#01-01 111 SAKRA AVE. SINGAPORE 627881 SINGAPORE

Material Designation: L-1250#(f2), L-1250U#, L-1250V#, L-1250Z#

Product Description: Polycarbonate (PC)

Color	Min. thick. (mm)	Flame Class	HWI	HAI	RTL Elec.	RTL Imp.	RTL Str.
ALL	0.40	V-2	4	3	80	80	80
	0.84	V-2	4	3	80	80	80
	1.5	HB	4	0	125	115	125
	3.0	HB	1	0	125	115	125
	6.0	HB	1	0	125	115	125
CXT:2, HVTR:2, D495:5							

Material designation may be suffixed with any one or two letters.

Subjected to one or more of the following tests; Ultraviolet Light, Water Exposure in accordance with UL 746C, where the acceptability for outdoor use is to be determined by UL Inc.

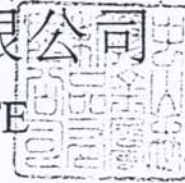
Report Date: 1999-07-29

SHIYANG (ZHONG SHAN) METAL PRODUCTS CO.,LTD

世扬金属制品有限公司

TEST CERTIFICATE

材质证明书



CLIENT 客户	天诚							certificate NO. 证明书号	070127-15	
name article 品名	Brass									
LOT NO.	SIZE(MM)	OUTW GT	DESIGNATION	Cu(%)	Pb(%)	Fe(%)	Fe+Sn(%)	Cd(%)	Zn(%)	REMARK
	STANDARD	(KG)	JISC3604	57~61	1.8~3.7	≤0.5	≤1.2	≤0.0075	REM	
7916	14.5 φ		JISC3604	58.92	2.986	0.446	0.971	0.0042	REM	
兹证明本表所列产品,均依材料规格制造及试验,并符合规格之要求。 WE HEREBY CERTIFY THAT MATERIAL DESCRIBED JERE IN MAS BEEN MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENT OF THE ABOVE MATERIAL SPECIFICATION.										

MANAGER: 曾敦義

PABLE: 李玉奎

DATE:2007/02/27

THE THREE INDUSTRIAL AREA NAN LANG TOWN ZHONG SHAN CITY
中国广东省中山市南朗镇第三工业区

TEL:0760-5214770 FAX:0760-5214769
E-Mail:sales@shiyangmetal.com

材 料 成 分 表

茲證明提供才貴公司產品由以下材料成分組成：

本公司熱縮套管

本公司產品規格

解析部位名稱	原材料名稱	原材料產地國	原材料製造供應商	物質 1		物質 2		物質 3		物質 4		物質 5		物質 6	
				名稱	構成比率	名稱	構成比率	名稱	構成比率	名稱	構成比率	名稱	構成比率	名稱	構成比率
	EVA	中国	北有机	EVA	100%										
	PE	广东	茂名石化	PE	100%										
	阻燃剂	山东	山东铝厂	AL(OH) ₃	99%										
	阻燃剂	深圳	商祺化工	Mg(OH) ₂	99%										
	色母料	深圳	威远公司	PE	60%	色粉	30%								

